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**COMPOSITIONS COMPRISING 2-HYDROXYCARBOXYLIC ACIDS AND RELATED COMPOUNDS,
AND METHODS FOR ALLEVIATING SIGNS OF DERMATOLOGICAL AGING**

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(56) Prior Art Documents

US 4612331

EP 0273202

EP 0413528

(57) Claim

1. A method for preventing and/or reducing the appearance of skin changes

associated with intrinsic and/or extrinsic aging, said skin changes associated with aging

resulting from natural or innate aging or exposure to actinic radiation,

whereby said skin changes associated with aging are selected from the group

consisting of thinning of the skin, deepening of skin lines, yellowish skin, loss of

elasticity, loss of recoilability, and loss of collagen,

said method comprising topically applying to the skin a composition comprising at

least one compound selected from the group consisting of 2-hydroxycarboxylic acids, 2-

ketoacids and related compounds, or topically effective salts thereof, in an amount and

for a period of time sufficient to prevent and/or reduce the appearance of said skin

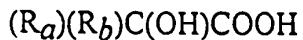
changes associated with intrinsic and/or extrinsic aging.

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wherein said 2-hydroxycarboxylic acid is represented by a generic structure of:



wherein R_a and R_b may be the same or different and are independently selected from H, F, Cl, Br, alkyl, aralkyl or aryl group of saturated or unsaturated, isomeric or non-isomeric, straight or branched chain or cyclic form, having 1 to 29 carbon atoms, and in addition R_a and R_b can be substituted by OH, CHO, COOH and alkoxy group having 1 to 9 carbon atoms, said 2-hydroxycarboxylic acid may be present as a free acid or lactone form, or in a salt form with an organic base or an inorganic alkali, and as stereoisomers as D, L, and DL forms when R_a and R_b are not identical.

said 2-ketoacid is represented by a generic structure of:



wherein R_c and R_d may be the same or different and are independently selected from H, alkyl, aralkyl or aryl group of saturated or unsaturated, isomeric or non-isomeric, straight or branched chain or cyclic form, having 1 to 29 carbon atoms, and in addition R_c may carry F, Cl, Br, I, OH, CHO, COOH and alkoxy group having 1 to 9 carbon atoms, said alpha ketoacid existing as a free acid or an ester form, or in a salt form with an organic base or an inorganic alkali, and

said related compound is selected from the group consisting of ascorbic acid, quinic acid, isocitric acid, tropic acid, trethocanic acid, 3-chlorolactic acid, cerebronic acid, citramalic acid, agaricic acid, aleuritic acid, pantoic acid, lactobionic acid and hexulosonic acid,

and wherein a pseudoamphoteric or amphoteric agent is not present in the composition.